WHAT IS CLAIMED IS:

1. A heat exchanger for an air compressor, comprising

a heat exchanger nest having a plurality of low temperature chambers through which low temperature fluid flows and a plurality of high temperature chambers through which high temperature fluid flows, the low temperature chambers and the high temperature chambers being alternately arranged in layers through a partition plate interposed therebetween, wherein a flowing direction of the low temperature fluid in the low temperature chambers and a flowing direction of the high temperature fluid in the high temperature chambers are substantially orthogonal to each other, and the both ends of the layered heat exchanger nest are the low temperature chambers.

2. A heat exchanger for an air compressor, comprising

a heat exchanger nest formed by alternately arranging a plurality of low temperature chambers through which low temperature fluid flows and a plurality of high temperature chambers through which high temperature fluid flows in layers through a partition plate interposed therebetween, wherein the number of the high temperature chambers is smaller than that of the low temperature chambers by one, and a flowing direction of the low temperature fluid in the low temperature chambers and a flowing direction of the

high temperature fluid in the high temperature chambers are substantially orthogonal to each other.

3. A heat exchanger according to claim 1, wherein the low temperature fluid is cooling water and the high temperature fluid is compressed air.

4. A screw compressor provided with a heat exchanger according to claim 1.

5. A screw compressor provided with a heat exchanger according to claim 2.

6. A heat exchanger according to claim 1, further comprising a container for accommodating the heat exchanger nest, wherein the container is provided with a container side projecting seal formed on an inner surface of a side thereof, and the heat exchanger nest is also provided with a nest side projecting seal formed on a side thereof, and wherein the container side seal and the nest side seal are coupled through a seal member which can be elastically deformed in contact with both seals, so as to form a seal part for partitioning the inside of the container into several portions.

7. A heat exchanger according to claim 2, further comprising a container for accommodating the heat exchanger nest, wherein the container is provided with a container side projecting seal formed on an inner surface of a side thereof, and the heat exchanger nest is also provided with a nest side projecting seal formed on a side thereof, and wherein the container

side seal and the nest side seal are coupled through a seal member which can be elastically deformed in contact with both seals, so as to form a seal part for partitioning the inside of the container into several portions.

8. A heat exchanger according to claim 6, wherein the nest side seal is provided in the vicinity of an outlet of the low temperature fluid.

9. A heat exchanger according to claim 7, wherein the nest side seal is provided in the vicinity of an outlet of the low temperature fluid.

10. A heat exchanger according to claim 6, wherein the nest side seal is provided so as to project from a bottom surface of the heat exchanger nest, so that compressive load is loaded on the seal member due to the mass of the heat exchanger nest.

11. A heat exchanger according to claim 7, wherein the nest side seal is provided so as to project from a bottom surface of the heat exchanger nest, so that compressive load is loaded on the seal member due to the mass of the heat exchanger nest.

12. A heat exchanger according to claim 6, wherein the cross sectional area of the seal member is larger than those of contacting parts between the seal member and the container side seal, and the seal member and the nest side seal.

13. A heat exchanger according to claim 7, wherein the cross sectional area of the seal member is

larger than those of contacting parts between the seal member the container side seal and, the seal member and the nest side seal.

14. A heat exchanger according to claim 6, wherein the seal member includes at least one of ethylene-propylene rubber, acrylic rubber, silicone rubber, and fluoro-rubber, as a principal component.

15. A heat exchanger according to claim 7, wherein the seal member includes at least one of ethylene-propylene rubber, acrylic rubber, silicone rubber, and fluoro-rubber, as a principal component.

16. A heat exchanger according to claim 6, wherein the seal member is a gas tube seal which is constituted by forming a polymeric material into a tube, and sealing or injecting gas therein.

17. A heat exchanger according to claim 7, wherein the seal member is a gas tube seal which is constituted by forming a polymeric material into a tube, and sealing or injecting gas therein.

18. A heat exchanger according to claim 6, further comprising a clamp for pressing the heat exchanger nest to the container side seal.

19. A heat exchanger according to claim 7, further comprising a clamp for pressing the heat exchanger nest to the container side seal.